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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,914	12/27/2001	Birgit Linhart	0273-0006	6890

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Toni-Junell Herbert
REED SMITH
3110 Fairview Park Drive
Suite1400
Falls Church, VA 22042

EXAMINER	
HINES, JANA A	
ART UNIT	**PAPER NUMBER**
1645	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/01/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/026,914	LINHART ET AL.	
	Examiner	Art Unit	
	Ja-Na Hines	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 November 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *7,9,22-25 and 36-47* is/are pending in the application.

4a) Of the above claim(s) *7,9,22-25,36-41 and 44* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *42, 43, 45-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/6/06*.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 8, 2006 has been entered.

Amendment Entry

2. The amendment filed November 8, 2006 has been entered. Claims 1-6, 8 10-21, 26-35 and 48-51 have been cancelled. Claims 7, 9, 22-25, 36-41 and 44 have been withdrawn. Claims 42, 43, 45 and 46 have been amended. Claims 42-43 and 45-47 are under consideration in this office action.

Withdrawal of Rejections

3. The rejection of claims 42 and 43 under 35 U.S.C. 103(a) as being unpatentable over Ball et al., (WO 95/34578) in view of Vrtala et al., (1996. J. Allergy Clin. Immun. Vol. 97(3): 781-787) has been withdrawn in view of applicants amendments and arguments.

Response to Arguments

4. Applicant's arguments filed November 8, 2006 have been fully considered but they are not persuasive.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. The written description rejection of claims 42-43 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement is maintained.

The claims are drawn to a method of preparing fusion polypeptides consisting of timothy grass pollen allergens comprising in pertinent part: providing “a” polynucleotide encoding the fusion polypeptide. However the written description is not commensurate in scope to the claims that read on a sequence which consists of or comprises "a polynucleotide encoding the fusion polypeptide". The claims recite "a" polynucleotide as part of the invention. This reads on a single nucleotide as having the ability to encode the fusion polypeptide. However, there does not appear to be an adequate written description in the specification as-filed that is representative of the single nucleotide having the ability to encode the fusion polypeptide consisting of timothy grass pollen allergens.

Applicants urge that because they were in possession of hybrid fusion allergens. However, The "Guidelines for the Examination of Patent Applications Under the 35 U.S.C. 112, first paragraph, Written Description" Requirement make clear that the written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species by actual reduction to practice, reduction to drawings, or by disclosure of relevant, identifying characteristics, i.e., structure or other physical and or chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and structure, or by a combination of such identifying characteristics, sufficient to show the applicant was in possession of the genus (Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 2001, see especially page 1106 3rd column).

Applicant does not appear to have reduced to practice the broad genus of " a polynucleotide encoding the fusion polypeptide." Neither has Applicant provided a sufficient written description of any particular structure of "a" polynucleotide capable of encoding the fusion polypeptide. Thus the genus of compounds encompassed by this phrase is extensive and the artisan would not be able to recognize that Applicant was in possession of the invention as now claimed. Therefore applicants' arguments are not persuasive and the rejection is maintained.

Thus, the written description is not commensurate in scope to what is being instantly claimed. Furthermore, applicants' have failed to provide any guidance concerning the missing information. Thus, applicants' discussion of the specific timothy grass pollen allergens is not sufficient since the hybrid polypeptide is described only by

a functional characteristic, without any disclosed correlation between function and structure of the sequence, it is not sufficient characteristic for written description purposes, even when accompanied by a method of obtaining the claimed sequence. It is unquestionable that the claims are broadly generic with respect all possible allergens encompassed by the claims. The possible structural variations are limitless, thus a hybrid polypeptide described only by a functional characteristic, fails to meet the written description requirement.

Claim 42 also recites that the immunotherapeutic agents induce stronger immune responses compared with the individual components or mixtures thereof. The written description in this is not commensurate in scope with the claims drawn to mixtures thereof. Neither the specification nor the claims teach how to define mixtures thereof. Neither the claims nor the specification teach how to obtain such mixtures. There is no guidance as to what the mixtures are; or what mixtures can or cannot be used in the method being claimed. The specification does not include structural examples of mixtures thereof. Thus, the resulting mixtures could result in a mixture not taught and enabled by the specification.

The skilled artisan cannot envision the detailed structure of mixtures thereof, thus conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method of isolation. An adequate description requires more than a mere statement that it is part of the invention and a reference to a potential method of isolating it. Furthermore, *In The Reagents of the University of California v. Eli Lilly* (43 USPQ2d 1398-1412), the court held that a generic statement which defines a genus of by only their functional activity does not provide an adequate description of the genus. The court indicated that while Applicants are not required to disclose every

species encompassed by a genus, the description of a genus is achieved by the recitation of a representative number of molecules falling within the scope of the claimed genus. Therefore the full breadth of the claims fail to meet the written description provision of 35 USC 112, first paragraph.

Applicants' urged that one of ordinary skill in the art armed with the instant specification, would understand the sequences used in the present invention. However, the standard is not that one would understand the sequences used in the present invention. To satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention. See, e.g., *Moba, B.V. v. Diamond Automation, Inc.*, 325 F.3d 1306, 1319, 66 USPQ2d 1429, 1438 (Fed. Cir. 2003); *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d at 1563, 19 USPQ2d at 1116. No preparation method has been disclosed. Rather applicants' have disclosed the entire sequences but have failed to disclose a method for preparing a hybrid polypeptide as recited.

It must not be forgotten that the MPEP states that if a biomolecule is described only by a functional characteristic, without any disclosed correlation between function and structure of the sequence, it is "not sufficient as a characteristic for written description purposes, even when accompanied by a method of obtaining the claimed sequence." MPEP 2163. Here, though the claims may recite some functional characteristics, the claims lack written description because there is no disclosure of a correlation between function and structure of the compounds beyond compounds disclosed in the examples in the specification. Moreover, the specification lack sufficient variety of species to reflect this variance in the genus since the specification does not provide any examples of derivatives. Furthermore, applicants have not taught

what polynucleotide will encode the fusion polypeptide. There is no teaching of a representative polynucleotide encoding the fusion polypeptide. There are no in vivo experiments. The specification is limited to the above mentioned timothy grass allergens fusion polypeptides. The written description requirement of the patent statute requires a description of an invention, not an indication of a result that one might achieve if one made that invention. *See In re Wilder*, 736 F.2d 1516, 1521, 222 USPQ 369, 372-73 (Fed. Cir. 1984) (affirming rejection because the specification does "little more than outlin[e] goals appellants hope the claimed invention achieves and the problems the invention will hopefully ameliorate."). Accordingly, it is deemed that the specification fails to provide adequate written description for the genus of the claims and does not reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the entire scope of the claimed invention. In view of applicants' failure to explain the essential details the rejection is maintained. Thus, in the absence of sequence information, the arguments and amendments are not persuasive and the rejection is maintained.

6. The new matter rejection of claims 42-43 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement is maintained. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

The rejection is now on the grounds that neither the specification nor originally presented claims provides support for a method of preparing fusion polypeptides consisting of timothy grass pollen allergens for use as immunotherapeutic agents comprising an provision step; an introduction step; a culturing step; a recover step; and testing the fusion polypeptide as candidate immunotherapeutic agents by administering said polypeptide to a test animal and selecting as immunotherapeutic agents those fusion polypeptides that induce IgE-blocking antibodies and induce stronger immune responses compared with the individual components or mixtures thereof.

Applicant did not point to support in the specification for a method of preparing fusion polypeptides consisting of timothy grass pollen allergens for use as immunotherapeutic agents comprising an provision step; an introduction step; a culturing step; a recover step; and testing the fusion polypeptide as candidate immunotherapeutic agents by administering said polypeptide to a test animal and selecting as immunotherapeutic agents those fusion polypeptides that induce IgE-blocking antibodies and induce stronger immune responses compared with the individual components or mixtures thereof. Moreover, applicant failed to specifically point to the identity of the method as instantly recited. Applicant has not pointed to any pages within the instant specification or original claims for support of the amendment, thus it appears that the entire specification appears to fail to recite support for the newly recited method. It appears that there is no support in the specification. Therefore, applicants must specifically point to page and line number support for the method of preparing fusion polypeptides consisting of timothy grass pollen allergens for

use as immunotherapeutic agents comprising an provision step; an introduction step; a culturing step; a recover step; and testing the fusion polypeptide as candidate immunotherapeutic agents by administering said polypeptide to a test animal and selecting as immunotherapeutic agents those fusion polypeptides that induce IgE-blocking antibodies and induce stronger immune responses compared with the individual components or mixtures thereof. Therefore, the claims incorporate new matter and are accordingly rejected.

7. The rejection of claim 45 under 35 U.S.C. 112, second paragraph, is maintained for reasons already of record. Applicants assert that the limitation "the respective wild-type allergens" in the claims would precisely convey to one skilled in the art its meaning. However, applicants should make appropriate amendments so as to have clear support or antecedent basis for the terms appearing in the claims. This is necessary in order to insure certainty in construing the claims in the light of the specification, *Ex parte Kotler*, 1901 C.D. 62, 95 O.G. 2684 (Comm'r Pat. 1901). See 37 CFR 1.75, MPEP §608.01(i) and §1302.01. Note that examiner is simply ensuring that the terms and phrases used in claims find clear support or antecedent basis so that the meaning of the terms in the claims may be ascertainable by reference to the description, see 37 CFR 1.75(d)(1). Thus the rejection is maintained and applicants' arguments are not persuasive.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 45-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ball et al., (WO 95/34578) in view of Vrtala et al., (1996. J. Allergy Clin. Immun. Vol. 97(3): 781-787).

The claims are drawn to a pharmaceutical composition comprising one or more fusion allergens of timothy grass pollen allergens as immunotherapeutic agents, wherein said agents consists of fusion allergens of timothy grass pollen allergens which have been identified by a method comprising the steps of: (a) providing fusion allergens of naturally occurring timothy grass pollen allergens; (b) challenging an immunological model with said fusion allergens; (c) selecting as candidate immunotherapeutic agents, those fusion allergens which induce IgE-blocking antibodies and have reduced allergenic activity compared with the respective wild-type allergens which comprise the fusion allergen. Furthermore, the claims are drawn to a hybrid allergen for treatment of IgE-mediated hypersensitivity, wherein said hybrid allergen is a fusion protein of two or more timothy grass pollen allergens.

The rejection was on the grounds that it would have been prima facie obvious at the time of applicants' invention to modify the polypeptide as taught by Ball et al., to

include a different timothy grass allergen as taught by Vrtala et al., to create a hybrid plant fusion allergen wherein said allergen is a fusion protein of two or more timothy grass pollen allergens, since Ball et al., already teach the need to have a hybrid or fusion polypeptide.

However M.P.E.P 2113 [R-1] entitled Product-by-Process Claims states that such claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted) (Claim was directed to a novolac color developer. The process of making the developer was allowed. The difference between the inventive process and the prior art was the addition of metal oxide and carboxylic acid as separate ingredients instead of adding the more expensive pre-reacted metal carboxylate. The product-by-process claim was rejected because the end product, in both the prior art and the allowed process, ends up containing metal carboxylate. The fact that the metal carboxylate is not directly added, but is instead produced in-situ does not change the end product.). The structure implied by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art, especially where the product can only be defined by the process steps by which the product is

made, or where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product.

Applicants argue that art does not teach fusion proteins of Phl p1 epitopes and expressible proteins so as to reconfigure the epitopic configuration of the allergen thereby allowing it to be used as an immunotherapeutic agent. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies i.e., fusion proteins of Phl p1 epitopes and expressible proteins so as to reconfigure the epitopic configuration of the allergen thereby allowing it to be used as an immunotherapeutic agents are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Therefore, applicants' arguments are not persuasive.

"[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342,1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Thus the claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). In *In re Crish*, 393 F.3d 1253, 1258, 73 USPQ2d 1364, 1368 (Fed. Cir. 2004), the court held that the claimed promoter sequence obtained by sequencing a prior art plasmid that was not previously sequenced was anticipated by

the prior art plasmid which necessarily possessed the same DNA sequence as the claimed oligonucleotides. The court stated that "just as the discovery of properties of a known material does not make it novel, the identification and characterization of a prior art material also does not make it novel." Id. See also MPEP § 2112.01 with regard to inherency and product-by-process claims and MPEP §2141.02 with regard to inherency and rejections under 35 U.S.C. 103. Furthermore, the inherent feature need not be recognized at the time of the prior art.

Applicants' argue that the art does not recognize the use of the epitopes as immunotherapeutic agents. In response to applicant's argument that the art does not appreciate the immunotherapeutic abilities of the allergens, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Here the art clearly teach the creation of a hybrid fusion allergen wherein said allergen is a fusion protein of two or more timothy grass pollen allergens, since Ball et al., already teach the need to have a fusion polypeptide. Ball et al., teach that timothy grass allergenic proteins such as Phl pl are amenable to being comprised within fusion proteins and/or hybrid polypeptides and can be fused to any other polypeptide that can be expressed as a fusion protein in prokaryotic or eukaryotic cells, while Vrtala et al., teach polypeptides that can be expressed in prokaryotic or eukaryotic cells, thus no more than routine skill would have been required to create a hybrid

polypeptide comprising at least two timothy grass allergens. Therefore applicants' arguments are not persuasive and the rejection is maintained.

Declaration

9. The declaration of Dr. Rudolf Valenta under 37 CFR 1.132 filed November 8, 2006 is insufficient to overcome the rejection of claims 45-47 based upon insufficiency of disclosure under 35 USC 112, first paragraph as set forth in the Office action because: the Declaration does not teach that the pharmaceutical composition is unobvious. The declaration states opinions about prior art references, and fusion proteins of Phl p1 epitopes and expressible proteins so as to reconfigure the epitopic, however that claims are not drawn to Phl p1 epitopes and expressible proteins so as to reconfigure the epitopic configuration of the allergen thereby allowing it to be used as an immunotherapeutic agent. However the statements of the declaration are not commensurate in scope to the instantly claimed subject matter.

New Grounds of Rejection

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 42-43 and 45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a) Claim 42 recites the limitation "the individual components or mixtures thereof" in the claim. There is insufficient antecedent basis for this limitation in the claim.

b) Claim 43 recites the limitation "the timothy grass pollen polypeptide" in the claim. There is insufficient antecedent basis for this limitation in the claim.

c) Claim 45 is unclear. It is unclear how the respective wild-type allergen comprises the fusion allergen. It is unclear how a wild-type allergen which naturally has one allergen will comprise a fusion of allergens. Therefore clarification is required to overcome the rejection.

Conclusion

11. No claims allowed.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ja-Na Hines whose telephone number is 571-272-0859. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Jeffery Siew, can be reached on 571-272-0787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ja-Na Hines
January 16, 2007

MARK NAVARRO
PRIMARY EXAMINER